

# SYNOPSIS OF LOCALITIES AND KEY TO THE PSOCOPTERA OF NORFOLK ISLAND

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## Abstract

This paper provides a key to the sixteen species of Psocoptera known from Norfolk Island, a list of island localities from which each has been taken and notes on habitat preferences. The list is based on published records and recently collected material.

## Introduction

Smithers and Thornton (1974) recorded fifteen species of Psocoptera from Norfolk Island based on material collected between 1968 and 1972; Smithers (1980) added another. A recent collection by Dr G. Monteith has provided about 150 specimens (in the Queensland Museum) including all but three of the recorded species. Smithers and Thornton (*loc. cit.*) did not provide a key to the species but with the likelihood of increased research on the island it would seem appropriate to present such a key here and at the same time take the opportunity of providing a synopsis of island localities from which each species has been taken and provide what information is available on habitat preferences.

The synopsis includes published records and localities of the recently collected material.

## Key to adults of Norfolk Island Psocoptera

1. Tarsi 3-segmented ..... 2
- Tarsi 2-segmented ..... 7
2. Fully winged, wings membranous with obvious venation, without scales ..... 3
- Wings reduced, sometimes very short, elytriform, with indistinct venation scales present ..... 4
3. Areola postica fused with M, i.e.  $Cu_{1a}$  fused with M. Fore wing with dense, mottled pattern ..... *Phlotodes australis*
- Areola postica free, i.e.  $Cu_{1a}$  not fused with M. Fore wing mostly hyaline ..... *Haplophallus emmus*
4. Frons without distinctive pattern, mostly of one colour ..... 5
- Frons with distinctive pattern ..... 6
5. Fore wings elongate, anterior and posterior margins parallel for most of their length ..... *Lepolepis graemei*
- Fore wings not elongate, strongly reduced, anterior and posterior margins not parallel ..... *Pteroxanium ralstonae*
6. Frons with a median pale line and one transverse pale bar ..... *Pteroxanium evansi*
- Frons with a median pale line and two transverse pale bars ..... *Pteroxanium insularum*
7. Brachypterous ..... 8
- Macropterous ..... 9

8. Head dark brown in strong contrast to pale body. . . . . *Ectopsocus richardsi*
- Head and thorax both dark brown . . . . . *Peripsocus milleri*
9. Areola postica fused with M. . . . . *Blaste lignicola*
- Areola postica free or absent, i.e.  $Cu_{1a}$  not fused with M or  $Cu_1$  not branched . . . . . 10
10.  $Cu_1$  branched, i.e. areola postica present, free. . . . . 11
- $Cu_1$  not branched, i.e. no areola postica. . . . . 13
11. Setae on veins of fore wing in two rows; areola postica long and shallow . . . . . *Heterocaecilius variabilis*
- Setae on veins of fore wing in single row; areola postica deep. . . . . 12
12. Cell IA darker than distal parts of wing membrane; fore wing length 3.0 - 3.2 mm . . . . . *Caecilius pacificus*
- Cell IA not appreciably darker than distal parts of wing membrane; fore wing length 1.8 - 2.0 mm. . . . . *Caecilius insulatus*
13. Claws with preapical tooth; hind wing with Rs and M fused for a length. . . . . 14
- Claws without preapical tooth; hind wing with Rs and M joined by a crossvein . . . . . 15
14. Fore wings hyaline with a small dark spot at nodulus and stigmapophysis and with  $R_1$  at end of pterostigma dark. . . . . *Peripsocus norfolkensis*
- Fore wings with broad, pale brown band from basad of pterostigma to basad of nodulus; pale brown patch between Rs and M after separation;  $R_1$  at end of pterostigma not darker than rest of vein . . . . . *Peripsocus milleri*
15. Male ninth tergite with two transverse rows of teeth. Female subgenital plate with two incurving posterior lobes. . . . . *Ectopsocus briggsi*
- Male ninth tergite with at most one row of teeth. Female subgenital plate with short, broadly triangular posterior lobes . . . . . 16
16. Pterostigma narrowest towards distal end, i.e. Rs curves gently towards costa. . . . . *Ectopsocus inornatus*
- Pterostigma widest at distal end, Rs curves abruptly to meet costa at right angle . . . . . *Ectopsocus insularis*

### Synopsis of locality records for Norfolk Island

#### LEPIDOPSOCIDAE

*Pteroxanium ralstonae* Smithers and Thornton. On three trunks and leaf litter in rainforest. Loc.: Collin's Head, Burnt Pine, Mount Pitt Reserve.

*Pteroxanium evansi* Smithers and Thornton. On tree trunks and leaf litter in rainforest. Loc.: Bumbora, Rocky Point Reserve, Collin's Head, Selwyn Reserve, Point Blackbourne, Stockyard Creek, Mount Pitt Reserve.

*Pteroxanium insularum* Smithers and Thornton. On trees in rainforest. Loc.: Point Ross, Mount Pitt Reserve, Captain Cook Monument, Collin's Head, Jonneniggabunnit, Melanesian Mission, Burnt Pine, Palm Glen, Selwyn Pine Rd.,

Point Blackbourne, Mission Rd., Cascade-Red Rd., Stockyard Creek, Rocky Point Reserve, Philip Island.

*Lepolepis graemei* Smithers and Thornton. Only found in leaf litter from a variety of plant associations. Loc.: Rocky Point Reserve, Palm Glen, Duncombe Bay, Burnt Pine, Mount Pitt Reserve, King Fern Gully, Steel's Point.

#### CAECILIIDAE

*Caecilius insulatus* Smithers and Thornton. On leaves from a variety of plant associations. Loc.: Captain Cook Monument, Selwyn Reserve, Rocky Point Reserve, Cascade-Red Rd., Bumbora, Point Blackbourne, Mission Rd.

*Caecilius pacificus* Smithers and Thornton. From broad leaved plants. Loc.: Selwyn Pine Rd., Captain Cook Monument, Rocky Point Reserve, Burnt Pine, Selwyn Reserve, Stockyard Creek, Collin's Head, Mount Bates, Ball Bay, Mount Pitt Reserve, Palm Glen, Bumbora, Point Ross, Melanesian Mission.

#### ECTOPSOCIDAE

*Ectopsocus briggsi* McLachlan. Beaten from dead leaves. Loc.: Ross Point, Rocky Point Reserve, Burnt Pine, Palm Glen, Melanesian Mission, Anson Bay, Mount Pitt Reserve, Captain Cook Monument, Mount Bates.

*Ectopsocus richardsi* (Pearman). From gut of gecko but known from stored products in several parts of the world.

*Ectopsocus insularis* Smithers and Thornton. From dead leaves. Loc.: Burnt Pine, Melanesian Mission, Bumbora, Anson Bay, Rocky Point Reserve.

*Ectopsocus inornatus* Smithers and Thornton. From dead leaves. Loc.: Mount Pitt Reserve, Palm Glen, Captain Cook Monument.

#### PERIPSOCIDAE

*Peripsocus milleri* (Tillyard). On twigs and stems. Loc.: Mount Pitt Reserve, Burnt Pine.

*Peripsocus norfolkensis* Smithers and Thornton. On twigs and stems from several plant associations. Loc.: Stockyard Creek, Point Ross, Burnt Pine, Melanesian Mission, Mount Pitt Reserve, Jonneniggabunnit, Collin's Head, Selwyn Pine Rd., Rocky Point Reserve, Captain Cook Monument, Mission Rd., Anson Bay Rd., Palm Glen.

#### PSEUDOCAECILIIDAE

*Heterocaecilius variabilis* Smithers and Thornton. Beaten from variety of plant associations. Loc.: Captain Cook Monument, Bumbora, Palm Glen, Burnt Pine, Mount Pitt Reserve, Rocky Point Reserve, Selwyn Pine Rd.

#### PHILOTARSIDAE

*Haplophallus emmus* Smithers and Thornton. Beaten from shrubs and trees. Loc.: Captain Cook Monument, Mount Pitt Reserve, Ross Point, Rocky Point Reserve.

#### PSOCIDAE

*Blaste lignicola* (Enderlein). From twigs and stems. Loc.: Ross Point, Melanesian Mission, Mount Pitt Reserve, Bumbora, Rocky Point Reserve, Palm Glen, Middlegate, Selwyn Pine Rd., Burnt Pine.

## MYOPSOCIDAE

*Phlotodes australis* (Brauer). On bark. Loc.: Point Blackbourne, Cascade, Burnt Pine.

## Notes on habitat preferences

**Lepidopsocidae.** The four species appear to be endemic to the island, all inhabiting the original rain forest plant association. *Pteroxanium ralstonae*, and *Pt. evansi* occur on tree trunks and in leaf litter; *Pt. insularum* has been taken only from the aerial parts of the plants whereas *Lepolepis graemei* appears to be mainly a leaf litter species.

**Caeciliidae.** Most species of *Caecilius* occur on the leaves of broad-leaved plants; the Norfolk Island species have been taken only from the aerial parts of the plants.

**Ectopsocidae.** Members of this family are mainly inhabitants of dried leaves. The Norfolk Island species have been taken from dead leaves and flower heads, except for *Ectopsocus richardsi* of which the only Norfolk Island specimen was found in the stomach of a gecko. This same species has a very wide distribution and has been taken from various stored products in several countries. Its native habitat is not known but it is probably an inhabitant of dried seed heads. The gecko is known to feed at flowers. *Ectopsocus briggsi* is known from many parts of the world but *E. insularis* and *E. inornatus* have so far been found only on Norfolk Island.

**Peripsocidae.** Most species are associated with twigs and stems of woody plants; the Norfolk Island species, of which only *Peripsocus norfolkensis* appears to be endemic, occur in similar habitats.

**Pseudocaeciliidae.** *Heterocaecilius variabilis* has been taken from aerial parts of plants in a variety of plant associations. It is probably a leaf dweller.

**Philotarsidae.** *Haplophallus emmus* is probably endemic, inhabiting twigs and stems of woody plants.

**Psocidae.** *Blaste lignicola* is found on twigs and branches; it is not endemic, occurring also in Australia.

**Myopsocidae.** *Phlotodes australis* is mainly an inhabitant of tree trunks and branches; it occurs in New Zealand and is widespread in Australia where it is common on weathered paling fences.

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## References

- Smithers, C. N., 1980. A redescription of *Ectopsocus richardsi* (Pearman) (Psocoptera: Ectopsocidae) based on Australian material. *Gen. appl. Ent.* 12: 13-15, 5 figs.  
 Smithers, C. N. and Thornton, I. W. B., 1974. The Psocoptera (Insecta) of Norfolk Island. *Rec. Aust. Mus.* 29(8): 209-234, 67 figs.